



Summit for a Sustainable Tennessee



Many voices, a common vision: Moving Tennessee toward a healthy and sustainable future for its people, places and economy.

DRAFT

Sustainability Agenda

November 2007

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Solar Valley Coalition - *The Solar Valley is an informal statewide network of TN energy activists open to all who want to realize the vision of a sustainable Tennessee.*

About the Sustainability Agenda

The 2007 Summit for a Sustainable Tennessee will convene in Nashville, November 15-17, 2007. *The Summit* will bring together private companies, non-profit organizations, agencies, institutions, community and business leaders and citizens from across the state with an interest in the long-term future of Tennessee, including its economy, its diverse communities and its land, air, water and wildlife.

The goal of the 2007 Summit is to establish an efficient and equitable process for crafting, prioritizing and advancing a statewide sustainability agenda and action plan for its implementation. This statewide plan for a sustainable Tennessee, to be known as ***The Sustainability Agenda***, should establish the connection between the natural landscape, a healthy environment, a healthy economy and improved quality of life for all citizens.

The 2007 Summit for a Sustainable Tennessee is only the first step in an ongoing, multi-year process of innovation, collaboration and re-invention. First we have to bring into focus a shared vision of a healthy balance between conservation, restoration, job creation and economic growth. Building a bigger vision involving the larger Tennessee community will enable us to join together and share the burden of making the hard choices ahead.

It is vital that we proceed deliberately toward a statewide consensus on the next phase of sustainable solutions that will move Tennessee ever closer to true sustainability, and with it, sustainable prosperity and real protection of our state's land, air and water. To reach this consensus, we will bring together from across the state hundreds of activists, community leaders, companies and organizations. Participants will be invited to share dozens of working models and case studies, and to demonstrate the most effective and environmentally sound practices, products and programs from every part of Tennessee.

Wherever citizens are having success preserving the natural resources in the watersheds where they live, work and relax, we need to hear from them, and start learning from them. And wherever these shared resources are most at risk, we need to shine a spotlight on these areas before it's too late. In the days after the Summit, everyone who shares the vision of a sustainable Tennessee must come together to do what is necessary to avoid irreparable damage to our state's most precious ecosystems, landscapes and waterways.

One of the goals of the *2007 Summit* is to establish a process for sharing expertise and experience from across a range of industries, perspectives and disciplines. *Summit* attendees will examine new mechanisms for combining resources at the community level with those of organizations and agencies operating statewide or at a national level.

The document before you is a working draft to begin the conversation at the November 2007 Summit. The final product will be the result of input from participants at the meeting in Nashville this November and at Regional Opportunity Forums to be held across the state in 2008.

Thank you to everyone for your contributions of time, energy, expertise, and resources to launch this state-wide collaborative effort to realize a Sustainable Tennessee!

Conservation and Sustainability: The Opportunity for the 21st Century

The move toward conservation and sustainability is all about *opportunity*.

Opportunity to experience natural, unspoiled landscapes as places to hike, swim, fish, hunt, camp or simply escape from the noise and rush of our towns and cities.

Opportunity to study and be fascinated by nature's infinitely complex and interconnected living systems.

Opportunity to leverage cutting edge technologies, to explore new sources of jobs and wealth, and to tap into the innovative power of Tennessee's entrepreneurs, research labs and educational institutions.

To make the most of these opportunities, we in Tennessee must be ready to listen more closely to a wider range of voices, to challenge long held assumptions about how things work, and to be prepared to acknowledge the *root causes* of issues and problems facing communities across the state. This new understanding will lead us to discover the best *upstream* solutions—solutions from which we, and our children, and their children, will all benefit.

Building Consensus on Positive Solutions: The 2008 Regional Opportunity Forums

Summit organizers are proposing a series of four to six regional sustainability forums to take place in key cities across the state throughout 2008. The first such regional forum is scheduled for January 24, 2008 in Knoxville in collaboration with the Environmental Leadership Program's Southeast Environmental Network (SERN). Other forums will occur next year in Chattanooga, Memphis and other cities to be announced.

Each forum will explore how the coming shift toward preservation and sustainability will create powerful opportunities for Tennessee communities, industries, and companies. Opportunity areas might include:

- *Understanding the Economic Value of Protected Greenspace and Healthy Watersheds*
- *Re-invigorating Local Agriculture Through Small Farms, Heirloom Crops, Organic Practices and Community Gardens*
- *Marketing State Parks and Wilderness Areas for Active Lifestyles and Adventurous Retirees*
- *Developing Strategies to Address Climate Change Impacts in Conservation Areas*
- *Strengthening Conservation Communities by Re-Defining Diversity*
- *Maximizing Efficiencies of Alternative Energy Sources and Off-The-Shelf Energy Conservation*
- *Enhancing and Promoting Our Quality of Life through Healthier, Better Connected Communities*
- *Leveraging Green Technologies, Jobs and Services for Economic Development*

A top goal of the regional forums is to demonstrate best practices in both the public and private sector, while showcasing some of Tennessee's most innovative programs and business models. These models will be examined and discussed alongside other exciting examples from corporations, institutions and communities in other states and possibly other countries.

Quality Growth Planning and Sustainable Design and Development

In support of future sustainable growth and development, livability, economic vitality and environmental quality of Tennessee.

Sustainability is defined as: *Meeting the needs of the present without compromising the ability of future generations, all species, and current and future natural systems to meet their needs.*

When a development or life process is sustainable and replicated, life cycle costs decline, value increases, structures and services last longer and negative environmental, social and economic effects are avoided. Tennessee can create future sustainability through the successful use of quality growth planning and sustainable design and development strategies and methods in our built and natural environments.

TOP ISSUES

Communities across Tennessee, whether in high or low growth regions, are facing serious issues resulting from growth and development pressures. Dispersed development patterns and outdated development approaches emulating from outdated policies and regulations are creating:

- β Greater and inefficient land consumption
- β Inefficient use of existing infrastructure and services
- β Over reliance on single family housing on large lots
- β Fewer housing choices with affordable homes farther away from jobs and services
- β Minimal reuse of already developed land and in-fill opportunities
- β Fewer transportation choices due to increased reliance on cars
- β Too few community, infrastructure, design and development options
- β Higher energy and personal transportation costs per family
- β Loss of free public services provided by lost or converted natural and environmental infrastructure

These same communities also:

- β Make development and design services decisions everyday without the benefit of comprehensive development and infrastructure plans, integrated cost projections and current best practices
- β Approve billions of dollars in public and private funding
- β Make uncoordinated land use, infrastructure, and piecemeal development decisions that further compound the problem and contribute daily to the unsustainable development patterns and higher costs of urban and rural development across our state
- β Approve new construction of residential, commercial and industrial structures, which traditionally do not include sustainable design construction methods.

All of these decisions affect the future livability and economic vitality of our state and communities and have drastic impact on the environment, conservation of our natural and fiscal resources, cost-effectiveness of governments, and future sustainable growth and development.

RECOMMENDED STRATEGIES AND SOLUTIONS

In a proactive response to a new vision for Tennessee, leaders can create new mechanisms and standards for the development and adoption of new, more flexible and comprehensive community, regional and state plans, supporting regulations and free market cooperation that address these top issues. These plans, regulations and free market devices like LEED (Leadership in Energy and Environmental Design) certification can also define standards and offer incentives for sustainable design and development practices for infrastructure and structures. Comprehensive plans, implementing regulations and free market tools can set policy, define new standards of practice, provide the basis for better decision making and create incentives for sustainable planning, design and development practices that will conserve Tennessee's land, water and fiscal resources. This following sections outline approaches will create sustainable communities and enhance our natural and built environments:

QUALITY GROWTH / COMPREHENSIVE PLANNING

- (1) Explore and use quality growth planning strategies, tools and resources to create comprehensive plans and regulations as an integrated framework to coordinate land use, transportation and other infrastructure elements and guide growth in a more sustainable manner including:
 - a. Cumberland Region Tomorrow Quality Growth Toolbox
 - b. American Institute of Architects Ten Principles for Livable Communities
 - c. Context Sensitive Solutions
 - d. New Urbanism Principles
 - e. Urban Forestry/Green Infrastructure Principles
 - f. Leadership in Energy and Environmental Design (LEED for Neighborhood Development)
 - g. Cradle to Cradle and The Hanover Principles
- (2) Create and adopt comprehensive plans containing quality (smart) growth elements/tenets as the foundation for community and economic development efforts and development efforts.
- (3) Align zoning, regulations, codes and capital investments to implement comprehensive plans.
- (4) Create, adopt and enforce new design guidelines and standards that integrate civic and sustainable design elements in appropriate context settings into planning and zoning requirements
- (5) Build professional capacity and educate, train, equip and certify new professional leaders to consistently deliver high quality and reliable sustainability services
- (6) Create incentives for effective implementation.
- (7) Support successful pilots and projects that demonstrate and implement high-quality examples of quality growth comprehensive planning.
- (8) Recognize and quantify the cost of development decisions and patterns and resulting costs of community services. In response where appropriate, create funding strategies that support successful quality growth planning and implementation efforts that makes wise use of our fiscal and natural resources and ensures the future livability and economic vitality of communities, regions and the State of Tennessee.

SUSTAINABLE INFRASTRUCTURE DESIGN AND DEVELOPMENT

- (1) Explore and use sustainable infrastructure strategies, tools and resources within the context of community, regional and state infrastructure planning and funding mechanisms to create more sustainable growth patterns and make wise use of public and private fiscal and natural resources including:
 - a. TN Department of Transportation (TDOT) PLAN Go Multi-Modal Long Range 25 Year State Transportation Plan

- b. Context Sensitive Solutions
 - c. Cumberland Region Tomorrow Quality Growth Toolbox
 - d. Institute of Traffic Engineers Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities
 - e. Congress of New Urbanism Complete Streets
 - f. Smart Growth America Fix It First Campaign
 - g. Priority Funding Areas
 - h. Capital Improvements Programs
 - i. Phasing for Roads, Water, Sewer and Technology Needs
- (2) Guide public and private investments to efficiently use pre-existing infrastructure and developed land within the context of state, regional and local planning.
 - (3) Institutionalize “Fix It First” programs and policies to allow balanced development opportunities.
 - (4) Identify critical natural infrastructure elements and use development techniques that preserve, restore or enhance these natural features and their public service functions:
 - a. Native and Extensive Urban Tree Canopy
 - b. Native Groves or Islands of Forested Uplands Native Forested and Herbaceous Wetlands with Understory
 - c. Native Forested Steep Slopes (25 percent +)
 - d. Native Forested Riparian Areas
 - e. Naturalized Stream Channels
 - f. Native Forested Floodplains
 - g. Native Plants and Eradication and Discontinued Use of Invasives and Exotics
 - (5) Align public and private funding to implement sustainable infrastructure policies.
 - (6) Support successful pilots and projects that demonstrate and implement high-quality examples of sustainable infrastructure design and funding.
 - (7) Recognize and quantify the cost of development decisions and patterns and resulting costs of government infrastructure and services. In response where appropriate, create funding strategies that support successful sustainable infrastructure design, development and funding that insures the safe, efficient and successful functioning of communities, regions and State of Tennessee.

SUSTAINABLE SITE AND BUILDING DESIGN AND DEVELOPMENT

- (1) Employ appropriate methods and standards to sustainable site design and development within established community and regional growth planning initiatives. This includes, but is not limited to comprehensive plans, design guidelines and the following planning techniques and initiatives:
 - a. United States Green Building Council LEED for Neighborhood Design (LEED ND)
 - b. Natural and Urban Forestry Infrastructure Methods
 - c. Smart Growth on the Ground (SEOG) Program
 - d. Congress of New Urbanism’s Light Imprint Design and Development Initiative (LINU - traditional neighborhood settings)
 - e. Low Impact Design and Development (LID - suburban settings)
 - f. American Society of Landscape Architects Sustainable Sites Initiative

- g. Earthcraft Piedmont Communities Guidelines Program
 - h. United States Green Building Council LEED Green Building Rating Systems for new and existing buildings
 - i. Energy Star, Earth Craft Homes, National Association of Home Builders National Green Building Program and other rating systems
 - j. Green permitting / fast track project approval for green projects
- (2) Create and adopt site design and engineering standards for development that include proven and appropriate alternative engineering strategies that work with a site's natural systems and the specific context of the project.
 - (3) Create incentives for successful implementation.
 - (4) Support successful pilots and projects on public properties and new private developments that implement high-quality examples of sustainable site and building design and development. Recognize and quantify the cost of development practices. In response, where appropriate, create new or revised infrastructure, service and development funding strategies that ensures the future fiscal health of the community and rewards developments that reduce their impact on the community's infrastructure system and/or maximizes efficient delivery of community services.

NOTE

Strategic planning for natural resource conservation, energy consumption and climate change improvements should also be included in these efforts. Establishing land conservation goals and priorities and integrating these into comprehensive regional and community planning is an essential step if Tennessee is going to protect our important land and water resources in the face of growth pressures and positively effect energy consumption and climate change issues. As these natural resource conservation priorities are identified and integrated into the planning framework, great promise also lies in using consolidated natural resource information in strategic land conservation efforts. These interrelated efforts are being addressed in the Natural Infrastructure and Energy Sessions of this Conference.

RECOMMENDATIONS FOR ACTION & ENDORSEMENTS

- (1) Create and endorse new standards of practice for Quality Growth Planning and Sustainable Infrastructure, Site and Building Design and Development methods.
- (2) Build capacity in and provide funding for existing technical assistance groups and create new capacity to support successful implementation of methods and practices. Public and private sectors groups to be included are non-profit organizations, government, design and engineering, development, finance and construction partners.
- (3) Realign existing state, regional and local laws, policies, free market tools and government programs to support successful implementation.
- (4) Create incentives and funding for successful implementation.
- (5) Fund successful pilot projects that utilize Quality Growth Planning and Sustainable Infrastructure, Site and Building Design and Development methods and create mechanisms to share results to support rapid implementation on new technologies and methods.
- (6) Compile case studies on local projects that have successfully implemented quality growth planning, and/or sustainable infrastructure, design and development practices to serve as "living educational tools".
- (7) Create financing for "high visibility" pilot projects that demonstrate innovative methods and technologies.
- (8) Foster relationships among non-profits, universities, government entities, design and engineering, development, finance and construction partners for successful collaborative action.

- (9) Work to rapidly institutionalize Quality Growth Planning and Sustainable Infrastructure, Design and Development practices and make them the norm for planning and development efforts across Tennessee.

Recommended Resource Providers, Tools and Resources

- Cumberland Region Tomorrow and Other Smart Growth Groups
- Tennessee Chapter of the American Planning Association
- State agencies such as Tennessee Departments of Transportation, Economic and Community Development, Environment and Conservation, Agriculture, Forestry and Wildlife Resources
- American Institute of Architects Tennessee Society
- Tennessee Chapter of the American Society of Landscape Architects
- Tennessee Section Institute of Transportation Engineers
- University of Tennessee College of Architecture and Design
- United States Green Building Council, Tennessee Chapters
- Nashville and Memphis Urban Land Institute District Councils
- Tennessee Urban Forestry Council
- American Forests and its CITYgreen GIS Application
- Cumberland River Compact's Building Outside the Box Program
- Regional watershed groups such as the Cumberland River Compact, Harpeth River Watershed Association and other groups.
- Lipscomb University, Institute for Sustainable Practice
- University of Tennessee, University of Tennessee School of Architecture's Green Vision Studio
- University of Tennessee created the Institute for a Secure and Sustainable Environment
- Vanderbilt University's SustainVU Initiative
- Nashville Civic Design Center
- Qualified design and engineering firms
- Individual members and member companies of the professional groups and organizations listed

Natural Infrastructure

- β Tennessee is blessed with an abundance of natural resources, flora, fauna, lands, waters and karst.
- β These resources are under increasing threat, due in large part to population growth, which is expected to continue at a rapid pace through 2030. More specifically, unplanned or poorly planned growth is putting and will continue to put tremendous strain on the state's natural resources.
- β The last ten years in Tennessee has seen tremendous change in land ownership, especially in the state's larger tracts of forest industry timberlands. Most of the state's traditional forest industry landowners have divested their land assets, with timberland investment management organization's acquiring a significant acreage.
- β Tennessee's population is expected to add another 1.4 million citizens by 2030 (2005 population – 6.0 million; 2030 projected population – 7.4 million; Source: US Census Bureau, Population Division, Interim State Population Projections, 2005. Internet Release Date: April 21, 2005).
- β Population growth is not expected to occur evenly across the state, but will most affect urban and suburban landscapes. Some metropolitan statistical areas, such as Nashville and Clarksville, are anticipating a 50% increase in population during the next 20 years. The rapid urbanization of these areas has the potential to further fragment or to otherwise seriously degrade habitats.
- β Rural counties are likewise affected by population growth in Tennessee, though primarily in meeting the water needs of its communities, which in turn will increasingly strain the ability of those water resources to provide for the needs of fish and wildlife.

TOP ISSUES

GROWTH

Some of the largest challenges we face in Tennessee are associated with projected population growth. While growth is good and desirable, it also brings significant challenges to maintaining the state's natural infrastructure, and ultimately, the state's quality of life.

1. Water Supply and Water Quality – as we have seen during this past summer's drought, freshwater is not an inexhaustible resource. This is true not only in Tennessee, but in many other areas of the southeast. Adequate water supply is a large and important issue for the state of Tennessee, which will require smarter planning, better enforcement of existing regulations, and new solutions to ensure that it remains available for people and for fish and wildlife.

Tennessee is blessed with approximately 66,000 miles of rivers and streams, and yet, approximately one third do not meet their designated use due to pollution. Water quality is a huge issue to Tennessee's residents, and it should be a priority of the state of Tennessee to ensure that all its streams and rivers meet adequate water quality standards in order to be removed from EPA's 303(d) list.

2. Roads and Transportation Planning – growth is significantly influenced by roads and transportation networks, and thus, natural infrastructure can be significantly impacted by the placement of roads. It is imperative that future transportation planning in Tennessee incorporates the natural infrastructure needs of the state. This includes land infrastructure, aquatic infrastructure, outdoor recreation infrastructure, and the conservation of biodiversity.

CLIMATE CHANGE

A new and emerging issue that will impact the natural infrastructure of Tennessee is climate change. According to the Intergovernmental Panel on Climate Change (IPCC) report in 2006, annual mean temperatures in North America are expected to increase 2-4°C by 2100, with much of the US expected to experience increased precipitation, while the southwestern US will be drier (IPCC, 2007). While it is difficult at this time to predict the impacts of climate change on Tennessee's natural infrastructure, if these climate projections prove to be true, it follows that vegetational changes will occur over time, which will greatly impact habitats for fish and wildlife. Of particular concern are high elevation habitats, and associated cold weather streams, which are expected to be significantly reduced over time due to warming temperatures.

Tennessee must have a serious discussion about climate change, and adopt a leadership role in planning for and addressing the mitigation of climate change effects. Tennessee's role should include the adoption of conservation practices which can reduce emissions of greenhouse gases.

From a natural infrastructure perspective, terrestrial carbon sequestration holds promise in providing both reduction of carbon emissions, and restoring important natural infrastructure habitats, particularly bottomland hardwood systems. Promotion of improved farming conservation practices, such as no-till and conservation tillage, can also dramatically reduce overall carbon emissions.

ENVIRONMENTAL EDUCATION FOR THE NEXT GENERATION

Richard Louv's 2005 book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, has started a national effort to get kids back into the outdoors. The present youngest generation is more out of touch with the natural world than any previous generation in history. The greatest danger from this loss of contact with the outdoors and the lost appreciation for the importance of nature is that tomorrow's leaders will have little reason to care for or protect our state's natural infrastructure.

SUCCESSSES

- β TN Heritage Conservation Trust Fund
- β Wetlands Acquisition Fund - 20 years of wetlands conservation, resulting in 70,000 acres of wetlands protected; important investment in land conservation
- β Inter-basin water transfer permitting
- β Forest Legacy
- β Bad Actor Forest legislation
- β Re-tooling West TN Tributaries Basin Authority
- β Public Chapter 243 – Utility district leak detection bill
- β State Revolving Fund rule change – lower interest rates available to communities who increase riparian buffers.
- β Public/private partnerships are growing

LAND INFRASTRUCTURE

- Nationally, Tennessee has one of the highest rates of conversion of green space to urban uses, according to the 1997 Natural Resources Inventory (data is 10 years old).
- Recent land use / land cover Geographic Information System (GIS) data (National Land Cover Data) indicated that Tennessee lost approximately 450,000 acres to urban conversion from 1992 to 2001. Conversion of open lands to urban classification is strongly correlated with population change in each county – each additional person moving into Tennessee resulted in 0.4 acres being converted from open land to urban land.
- Tennessee Heritage Conservation Trust – Assessment of Needs was completed in 2007. This assessment provides a look at the land needs for the TN Wildlife Resources Agency, TN Division of Forestry, and TN Department of Environment and Conservation (state parks and natural areas). About 1.1 million acres were identified as important for the future land conservation interests of these 3 state departments, at an estimated cost of a little more than \$1 billion.
- Priority Areas – Mississippi River Corridor, Cumberland Plateau, Tennessee River Valley (east and middle TN), and Foothills of the Appalachian Mountains [other areas?]
- Nonprofit land conservancies are becoming increasingly important in achieving land conservation goals in Tennessee.

Issues

- Lack of Planning for Quality Growth and Conservation of Land Resources
 - Metropolitan / urban landscapes vs. rural landscapes have different issues
- Agricultural / rural landscapes are being lost at an increasing rate
- Inadequate Funding for Sustainable Land Conservation

Recommendations for Action /Solutions

- (1) From the Cumberland Region Tomorrow Quality Growth Toolbox
 - a. Plan for Natural Infrastructure
 - b. Identify and Establish Land, Water, Natural, and Cultural Resource Priorities (Use TN State Wildlife Action Plan)
 - c. Integrate Priorities into Community and Regional Plans
 - d. Use Existing Resources for Conservation
- (2) Maximize the use of existing land conservation incentives, and create new incentives
- (3) Purchase land development rights of agricultural lands
- (4) Establish a formal, state-level Farm and Ranchland Protection Program, which can be matched with the federal program to protect farmlands.
- (5) Establish a state level land acquisition program focusing on priority uplands, similar to the Wetlands Acquisition Fund.
- (6) Work with local communities and counties to provide incentives for increased land protection at the local level.
- (7) Increase collaboration between land trusts/conservancies and government.

WATER/AQUATIC INFRASTRUCTURE

- Tennessee has 3 major river drainages – the Mississippi, Tennessee, and Cumberland rivers, and about 66 thousand miles of tributaries and streams which feed into these major rivers. Tennessee also has nearly 538,000 reservoir/lake acres.
- Tennessee’s waters support an astonishing variety of wildlife, including more than 325 species of fish, 132 species of mussels, 101 species of crayfish. In addition, Tennessee’s 70 amphibian, 61 reptile, 300 bird and 89 mammal species all rely on Tennessee’s water resources.
- According to the World Wildlife Fund and The Nature Conservancy, the Cumberland and Tennessee River Basins are global epicenters of freshwater aquatic life.
- The Cumberland and Tennessee Basins are also considered a global center for salamanders, ranking 9th in world for amphibian diversity (globalamphibian.org): 150 species of salamanders, 100 species of frogs and toads, and ranks 6th in the world for amphibian endemism (globalamphibians.org), and
- Four of the eight most ecologically rich rivers in North America are in Tennessee.
- Tennessee’s rivers and streams provide for the water needs of 6 million residents. Some areas are extremely vulnerable to degradation due to poorly designed development, mineral extraction, poor agricultural practices, poor forestry practices, and other causes.
- According to the Tennessee Department of Environment and Conservation’s 2006 305 (b) report, of the over 60,000 miles of rivers and streams in the state about ½ have been tested and assessed by department staff for water quality. Of these assessed streams, 33 percent are on the EPA 303(d) list, because they do not meet their designated uses. Common causes of pollution in rivers and streams include sediment/silt, habitat alteration, pathogens and nutrients. The main sources of this pollution are agricultural practices, dams and other diversions, municipal dischargers and construction site run-off.
- Of the 538,000 reservoir/lake acres, nearly all have been assessed and of those 79 percent meet their designated uses. Common causes of pollution in reservoirs and lakes include organic substances, PCB’s, dioxins, mercury and chlordane as well as nutrients, sediment/silt and low dissolved oxygen. The main sources of these pollutants are historic discharges that have accumulated in sediments and fish flesh, hydrologic modifications, municipal dischargers and construction site run-off.
- Wetlands serve as buffers for rivers, provide habitat, ease the impacts of floods and drought, and filter pollutants. Historically Tennessee had nearly 2 million wetland acres. In 2006, the state had 787,000, representing a 60 percent loss over the past 200 years.
- Clean water is a hugely important issue with Tennessee citizens – according to a February 2007 poll of 600 Tennessee registered voters, Tennesseans ranked “Protecting sources of drinking water” (94%) and “Protecting water quality in rivers and streams” (85%) as ‘Extremely or Very Important conservation programs.
- Watershed-based conservancies and other non-profits are playing an increasingly important role in the conservation of our water infrastructure, and will be an important part of the solution for Tennessee’s future water resource conservation.

Issues

- Water Supply/Regional Planning
 - In-stream Flow/small dam removal
- Clean Water

- Waste water treatment
- Water quality/sediment loads from many sources
 - Off highway vehicles
 - Poor farming, forestry and mining practices
 - Poor development practices

Recommendations for Action /Solutions

(1) Water supply Planning/Regional Planning/Watershed Protection

- a. Complete a comprehensive assessment of water policy / legislation in Tennessee adequate to accommodate projected growth?
- b. Engage local, state, and federal partners to develop an economically and environmentally sustainable water supply policy for Tennessee
- c. Develop a “pilot water supply plan” for some region in Tennessee. Aquatic resource Habitat Conservation Plan on Cumberland Plateau may provide a model.
- d. Develop model legislation to address future growth issues and the lack of water supply planning
- e. Complete in-stream flow models for priority streams and rivers, and develop legislation that protects aquatic resources in biologically rich waters
- f. Create a strong role for watershed groups
- g. Clean water
- h. Establish a goal of having 100% of Tennessee waters meet designated uses.
- i. Enforce existing laws and regulations
- j. Equal enforcement for both point and non-point polluters
- k. Incentives for “good actors”
- l. Increase fines for “bad actors”
- m. Look for creative ways to work more effectively with agriculture and forestry

OUTDOOR RECREATION NEEDS FOR THE FUTURE

- Tennessee is experiencing an ever-increasing demand for residential development in rural areas, where recreation was once the primary highest and best use for rural land. Large corporate-owned timber tracts were once available to the public for activities such as hunting, horse-back riding, and ATV riding. These activities have come to a drastic halt on thousands of acres for local residents in Tennessee due to extensive gated rural residential developments that consume thousands of acres. One county documented 40,000 acres of former timber tracts converted to rural residential development between 2003 and 2007.
- While state parks, natural areas, and urban greenways seem to be increasing in size and numbers, accessible community-based hunting and recreational off-road vehicle riding opportunities are rapidly dwindling. These activities have traditionally served as the primary form of activity connecting many rural Tennessee citizens to their natural environment.
- In a recent study conducted by the Tennessee Wildlife Federation, it became evident that the loss of hunting opportunity is of great concern to the residents of the South Cumberland Plateau. Over 1,000 residents in two small communities in Sequatchie and Marion County signed petitions requesting state and federal leaders

purchase more land for hunting, wildlife, trail corridors, and watershed protection as a reaction to rapid residential development on the Southern Cumberland Plateau.

- Due to increasing demands for education and safety spending, most local governments do not have the financial resources or statutory responsibility to purchase tracts of land for conservation, recreation, or watershed protection.
- Although recent large-scale state conservation projects are needed and should be applauded, they do not satisfy the need for community-based forests that are easily accessible to citizens, and in close proximity to communities.
- Permanent funding to address greenway, conservation, watershed protection, and outdoor recreation needs of Tennessee citizens will insure the political support needed for a major community forest-based funding initiative in Tennessee.
- Funding for a major community forest and greenway initiative will help address the issues raised in the recent book, *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder* (Richard Louv, 2006)
- Hunting, fishing, hiking, canoeing, kayaking, camping, wildlife watching, are all outdoor recreational needs for the future.
- In urban/suburban areas, parks and greenways play an important role in the Natural Infrastructure.
- Where should these areas be, what kind of investment is needed?

Recommendations for Action /Solutions

- (1) Educational - although local governments are an important audience to educate; state, federal, and non-profit conservation leaders also need educating on growth processes at the local level. It is also important to educate ourselves on what is important to the average citizen in order to build the popular support needed for major legislative action.
- (2) Legislative - conservation advocates should partner with local government experts to seek out common ground on how to encourage local governments to engage in land conservation in order to protect watershed, create community forests, and outdoor recreational opportunities for its citizens (i.e., a community forest loan and grant program just as we have for water line extensions). Drinking Water State Revolving Fund, as well as US Department of Agriculture's Rural Development loan and grant program should tie watershed protection through land acquisition to rural water line extension funds, while allowing some room for growth.
- (3) Market-based – TWRA, TDEC, and the US Department of Agriculture should partner with Economic and Community Development to explore what incentives are needed to entice large private landowners create tourism and recreation-based businesses that keep large timber tracts as forests. Funds are needed to purchase public access and conservation easements, while timber and surface rights remain in private ownership. In addition, the conservation community must accept limited development as a legitimate conservation tool in some cases or else nothing will get conserved.
- (4) Regulatory - TDEC and TWRA must ask themselves the question of what should they be doing in order to prevent the most loss of habitat for wildlife? Do fines alone solve long-term issues? Do we need legislation that identifies sensitive habitats, creating a higher set of standards for developers who wish to build roads, or requiring stone miners to reclaim areas they have worked in? State agencies must get more involved in super developments that cover thousands of acres on the plateau by overseeing roads and development plans prior to plat approval.
- (5) Research- we must quantify how much land is being fragmented throughout each region of Tennessee, resulting in the loss of outdoor recreation opportunities, and loss of unique plants, forests, and critical wildlife habitats.

CONSERVATION OF BIODIVERSITY

- The Tennessee Wildlife Action Plan identifies more than 660 fish and wildlife species as Species of Greatest Conservation Need (GCN). These species occupy aquatic, terrestrial, and subterranean habitats throughout the state of Tennessee.
- Some of the most important terrestrial habitats that support GCN species include Bottomland and Floodplain Forests, South-Central Interior Mesophytic Forest, native prairies and barrens, Appalachian Hemlock-Hardwood Forests, cove forests, and forested riparian corridors.
- Tennessee is home to more than 270 species of birds. Many species are declining, some precipitously, due to large-scale habitat loss and habitat fragmentation.
- Tennessee's aquatic biodiversity is especially rich, as is the southeastern United States, which is considered a world hotspot for aquatic biodiversity.
- The Southeastern Aquatics Resource Partnership (SARP) is developing a Southeast Aquatic Habitat Plan, which will identify the highest priority watersheds in the Southeast for conservation.
- The Tennessee Wildlife Action Plan identifies hotspots of terrestrial, aquatic and subterranean biodiversity in Tennessee, providing an excellent resource for managers and land use planners to guide habitat protection and restoration efforts.
- Some of the most common sources of stress on the biodiversity of Tennessee include incompatible land use practices, primary and secondary residential development, commercial and industrial development, river and stream channelization, municipal wastewater treatment and stormwater runoff, and others.

Issues

- Funding – it has long been recognized that funding for non-game wildlife programs in Tennessee has been and continues to be inadequate. The Tennessee Wildlife Resources Agency, which has management and regulatory responsibilities for fish and wildlife, is largely supported through the sale of hunting and fishing licenses, and has no state-level funds that can be directed to non-game programs. At the federal level, the Teaming with Wildlife Initiative has been moderately successful, and has resulted in an annual average of about \$1 million that comes to Tennessee for non-game fish and wildlife programs.
- Growth Planning – a key initiative of the TWRA and its State Wildlife Action Plan is to provide outreach and technical assistance to local community and county planners to raise awareness of the Plan, and to better communicate the habitat needs of fish and wildlife to people who are influencing and implementing important land use policies.
- Climate change - while the science of predicting climate change is still inexact, there is a growing consensus that climate change could have large impacts on habitats and biodiversity in the 21st century. In Tennessee, these impacts are likely to be felt most acutely at higher elevations in eastern Tennessee, and some high elevation habitats could be lost. The American Bird Conservancy predicts that up to 20 species of songbirds that currently nest in Tennessee may experience significant declines or extirpation by 2100 due to habitat changes resulting from climate change.

Recommendations for Action /Solutions

- (1) Support the Teaming with Wildlife Initiative by becoming a member of Tennessee's Teaming Coalition.

- (2) Support increased federal funding for non-game wildlife programs, including the State Wildlife Grants program, Neotropical Migratory Bird Act, North American Wetlands Conservation Act, Forest Legacy, Landowner Incentives Program, Farm Bill conservation programs, and others.
- (3) Support stable and sustainable state-level funding for non-game wildlife management in Tennessee.
- (4) Get involved in the local land use planning process, and encourage land use planners and local policy makers to utilize and consider the Tennessee Wildlife Action Plan in their growth plans.
- (5) At the federal level, support climate change legislation which includes funding for wildlife conservation.
- (6) Support the development of a state-level climate change action plan.

INVESTMENT NEEDS

- With increasing population growth in Tennessee, and increasing land values, it is imperative that Tennessee makes additional investments into the protection of its natural infrastructure for future generations and for sustaining the quality of life that Tennesseans currently enjoy and expect.
- Investments in natural infrastructure make economic sense. A recent report produced by Southwick Associates for the Tennessee Wildlife Federation found the following:
 - For every 10,000 acres of forest, Tennessee receives \$1,220,000 in ecosystem benefits annually (carbon sequestration, air and water filtration, etc.)
 - For every 10,000 acres of swamp and floodplains, Tennessee receives \$79,270,000 in ecosystem benefits annually (flood control, water filtration, groundwater re-nourishment, etc.)
 - For every 10,000 acres of grasslands and plains, Tennessee receives \$940,000 in ecosystem benefits annually (carbon sequestration, erosion control, etc.)
 - For every 10,000 acres of lakes and rivers, Tennessee receives \$34,440,000 in ecosystem benefits annually (water storage and supply, flood water retention, etc.)
- Outdoor recreation is a \$5 billion industry in Tennessee. Outdoor recreation includes hunting, fishing, wildlife viewing, hiking, bicycling, camping, snow sports and water sports. These activities generate more than \$340 million in Tennessee state tax revenues each year.
- Tennessee has made some notable strides in addressing natural infrastructure needs. The Wetlands Acquisition Fund, which is funded through a portion of the Real Estate Transfer Tax, is 20 years old, and has been used to permanently protect more than 200,000 acres of land in Tennessee, including nearly 70,000 acres of wetlands.
- The establishment of the Tennessee Heritage Conservation Trust Fund has been a real success in targeting high priority lands in Tennessee, especially critical tracts on the Cumberland Plateau. The state's investment in these lands ensures that they will be available for public access for future generations of Tennesseans, and ensures that these areas continue to provide critical habitats for wildlife, and critical ecosystem benefits for people.
- Even with these notable successes, according to the 2006 Governing Magazine's Grading of the States, Tennessee ranks 50th in environmental spending.
- A recent report by the Trust for Public Land on Tennessee's conservation financing found that while Tennessee is the nation's 15th fastest growing state (with 3 counties in the top 100 nationally), funding for land conservation, management and maintenance is not sufficient to meet the state's needs. Tennessee has 3 land acquisition funds (Wetlands Acquisition Fund, State and Local Parks Land Acquisition Fund, and State Lands Acquisition Fund) which are funded by a portion of the real estate transfer tax. Tennessee also has the Heritage Conservation Trust Fund, which is funded out of the general fund by annual appropriation.

Issues

- Adequate Public Lands to meet Future Needs – with a rapidly growing population and increasing land values, Tennessee’s natural infrastructure will continue to be lost at an alarming rate, and also will become more expensive to protect. Tennessee must plan for and fund its future public land acquisitions. The Tennessee Heritage Conservation Fund conducted a preliminary assessment of needs, finding that approximately 1.1 million acres were needed to meet the needs of the Tennessee Wildlife Resources Agency, Tennessee Department of Environment and Conservation, and Tennessee Division of Forestry. These lands are estimated to cost about \$1 billion.
- Sustainable Funding to acquire, manage, and maintain natural infrastructure – it has been demonstrated that while outdoor recreation pumps more than \$5 billion into Tennessee’s economy, generating more than \$340 million in annual state tax revenues, Tennessee does not invest enough financial resources into the protection of the very resources on which this industry relies.
- Education investments – as Richard Louv’s book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, so poignantly illustrates, our youngest generation has lost contact with nature, and rarely experiences nature as a part of everyday life. While our state has made education a priority for our children, not enough is being done to ensure that our children have access to nature. Several states and organizations are making increased investments in environmental education to ensure that children have access to the outdoors, and grow up to become more aware of the importance of a healthy environment for their own health and prosperity.

Recommendations for Action /Solutions

- (1) Support the Teaming with Wildlife Initiative by becoming a member of Tennessee’s Teaming Coalition.
- (2) Support increased funding for public land conservation – a proposal for a bond issue is included in Appendix A.
- (3) Support state incentives for local land conservation efforts. Several states offer models that Tennessee can duplicate, as suggested in the Trust for Public Land’s Tennessee Conservation Funding 2006 report.
- (4) Support a national No Child Left Inside initiative, to reverse the trends of our children not having access to or experiences with nature.
- (5) Initiate a state-level No Child Left Inside initiative, to ensure that Tennessee children and their families have access to the outdoors.
- (6) Support state-level conservation funding, preferably a conservation tax supported by general revenue funds. Models for conservation funding exist throughout the country – citizens from Missouri and Arkansas have voted to constitutionally direct 1/8 of a cent of their sales tax to conservation funding.
- (7) Support Climate Change legislation which includes funding for wildlife habitat conservation.

RESOURCES

- Tennessee State Wildlife Action Plan – <http://www.state.tn.us/twra/nongame.html>
- Duck River Growth Readiness Report - [http://www.southeastwaterforum.org/files/duck%20river%20final%20report\(web\).pdf](http://www.southeastwaterforum.org/files/duck%20river%20final%20report(web).pdf)
- Tennessee Heritage Conservation Trust Fund Act of 2005: A Preliminary Assessment of Needs - <http://www.state.tn.us/twra/thcp.html>
- Climate Change 2007: The IPCC Fourth Assessment Report (AR4) - <http://www.ipcc.ch/>

- Global Warming & Birds: Tennessee - <http://www.abcbirds.org/climatechange/Tennessee.pdf>
- Cumberland Region Tomorrow – Quality Growth Toolbox – www.cumberlandregiontomorrow.org

Appendix A

Investment Needed for *Green Tennessee* *Creating a Sustainable Green Infrastructure*

Why is it important?

A Sustainable Tennessee and our children's future depend on wild species - to enrich the soil, cleanse the water, pollinate the flowering plants, and create the very air we breathe. In addition to providing food, water and air, our natural environment provides us with raw materials for our economic future: for the next important, undiscovered medicines, crops, timbers, fibers, soil-restoring vegetation, petroleum substitutes, and other products and amenities. Also, Tennessee's beautiful natural landscape contributes to the health of our economy and attractiveness for industry and tourism. A beautiful and healthy place to live and a myriad variety of recreation pursuits, all contribute to our economic strength. Investments are needed now to ensure our children receive these same benefits and more tomorrow. This can be achieved but we have to act now to conserve *Green Tennessee*.

Statement of Need: A national trend of farmland and natural area loss threatens Tennessee's land and water. We are 7th worst in the nation in terms of the pace at which we are spoiling Tennessee. Over the last ten years, an average of 80,000 acres each year has been converted from working farms and forests, to sprawl, roads, parking lots and other developments. This rate of conversion is increasing. Between 1999 – 2003, Tennessee lost an average of 100,000 acres of forestland and 75,000 acres of farmland to urbanization and development. Tennessee is among the fastest growing states with over 1.3 million new residents in fifteen years (1990 – 2005). To accommodate this growth, more than 86,000 miles of paved roads crisscross our state, enough to circle the Earth more than three times. While we recruit new developments and industry and build new roads, we are losing precious ground. We Tennesseans want a successful economy and healthy work force and a quality natural environment, now and in the future. This can be achieved —but only with a *sustainable* approach.

Our vision is simple and attainable:

Direct Growth. Create a Sustainable Green Infrastructure. Green Tennessee.

Green Tennessee will create networks of preserved open space and waterways that can help guide growth, create wildlife corridors, and protect water quality. Investments to conserve existing lands and precious waters will stall haphazard fragmentation and sprawl and redirect it to suitable, developable, less significant lands in Tennessee. Meanwhile, Tennesseans will win.

Our Strategy:

Using the model and strategies proven successful across America, we must invest to accomplish a Sustainable Green Infrastructure. First, we must enlist citizens and decision-makers to support this vision with maps of essential conservation lands needed and build support for conservation investments with public involvement. Then we create and leverage new state conservation funds with local, federal and private funding and use multiple strategies to conserve the best in Tennessee. Techniques will include acquisition in fee, easements, private stewardship tools for working landscapes, and land use planning (an *all hands on deck* approach).

Development pressure is fierce, so time is of the essence. Fortunately, much of the work has been done and we are equipped to complete the task.

What has been accomplished thus far?

First, we know the current value of Tennessee's lands and waters and we have the map to tell us where to invest to conserve the best Tennessee has to offer. The State Wildlife Action Plan is the base map. It is the culmination of decades of study of Tennessee's natural resources. By linking existing public and privately conserved lands, the creation of a green infrastructure is closer than you'd think.

Second, a plethora of Tennesseans are working already in Corridors, creating this network. These Tennesseans are impassioned and they will make the case to legislators and to the public. An infusion of capital will accelerate progress in these corridor projects through existing public agencies, citizen-led civic groups, hunting, fishing, and recreation groups, environmental and conservation organizations.

Third, we have existing conservation funding to aid this vision. In 2005, Tennessee Governor Phil Bredesen signed the Tennessee Heritage Conservation Trust Fund Act, adding an additional source of funding to the three previously established conservation trust funds. The Heritage Conservation Trust Fund's initial budget was \$10 million from general appropriations and an additional \$10 million was added in 2007.

The state also funds land conservation through three additional conservation trust funds: Wetlands Acquisition Fund; State and Local Parks Land Acquisition Funds; and the State Lands Acquisition Fund. These three programs are funded with a portion of proceeds from the states' real estate transfer tax, which was passed by the Tennessee Legislature in 1986 and expanded in 1991. Currently, Tennessee charges a real estate transfer tax of \$.37 per \$100 of the value of property conveyed. Of these funds, \$.29 goes to the state's general fund and \$.0685 cents goes to land acquisition or \$21,326,381 per year. (\$.15 is placed in an agricultural resources conservation fund, which is not used for land acquisition.)

Tennessee also participates in a range of federal land conservation programs, accessing funds and matching grants for land protection throughout the state. Non-profit and local government partners routinely leverage existing public funds.

Fourth, we have conserved 2,146,000 acres in public lands already (with 63% in federal ownership, mainly concentrated in the Appalachian Mountains in East Tennessee). By acquiring 1.2 million acres more of high priority conservation lands, we can link most of these public lands together to create a Sustainable Green Infrastructure. Then existing public lands will function more ecologically and sustainable for wildlife, water quality, and for the environmental and economic health of future generations of Tennesseans. The good news is we are more than 2/3 there.

An additional investment is needed:

The Tennessee Wildlife Resources Agency, Tennessee Division of Forestry and Tennessee Department of Environment and Conservation have identified approximately 1.2 million acres of lands in 75 project areas that should be acquired ("Tennessee Heritage Conservation Trust Fund Act of 2005: A Preliminary Assessment of Needs, August, 2006"). These lands were identified based on their importance as habitat for priority species, for water supply and quality, for their strategic location and their availability. *By protecting only 5% more of Tennessee's 23 million acres, we can create the green infrastructure we need for a sustainable future.* This is attainable. We will **Green Tennessee**.

The cost

To protect these additional areas, the cost is estimated at more than \$1.3 billion. However, our funding strategy will leverage existing federal funding sources and create incentives for local government matches and private donations. Therefore, our State's investment is reduced to half this amount or \$650 million. Because half of lands critical for Green Tennessee will not be possible to acquire initially but will require time to secure as landowners become willing, existing funding will be needed over time and is in place already. The real estate

transfer tax will continue to provide a continuous funding stream to help realize this vision as properties become available.

The initial investment should be a \$325 million bond issue.

Where should the \$325 million funding come from?

A bond issue has the greatest potential to provide significant new state funding for land conservation in Tennessee. Relatively modest amounts of funding are necessary to finance annual debt on state bonds.

Tennessee Bond Debt Service (Assumes 25-year bond at 5% interest rate)

Bond Issue	Annual Debt Service
\$100,000,000	\$7,095,246
\$200,000,000	\$14,190,491
\$325,000,000	\$23,059,549

As lands are acquired for Green Tennessee, opportunities for recreation and outdoor pursuits will increase and so will the revenue from related equipment sales. In addition to repaying the bond, an estimated \$9 million would supplement state agency conservation budgets for land management. Once the bond is paid off, at year 25, and an additional one million acres are available for conservation, this tax would continue and provide funding necessary for land management.

Tennesseans will support this.

A 2006 survey by the University of Tennessee asked “For Tennessee to increase efforts to protect, conserve and enhance outdoor places and wildlife habitat, would you support or oppose an increase in the state budget to cover additional costs?” 65.8% either somewhat or strongly supported this statement, while only 15% either somewhat or strongly opposed it. 18% were neutral or undecided.

Tennesseans will benefit immediately with a return on this investment.

In a 2006 review process, the TWRA identified a number of actions that could be taken to boost fish, wildlife and their related acquisitions in Tennessee, including securing new lands for hunting, fishing and recreation. These would cost \$25 million to \$32 million annually. An economic analysis of such investments in the TWRA show the following annual impacts would be expected in return: \$503 million in additional retail sales, \$749 million in total economic activity, 7,742 jobs and \$33.4 million in state tax revenues.

Excessive sedimentation has repeatedly been identified as the #1 stream pollutant in Tennessee. Forested and grassy buffers provide many services that are costly to do manually, such as controlling erosion, filtering surface water, controlling floods, purifying groundwater and protecting ecosystems. Buffering our important stream reaches will save us money on cleaner water initiatives. These stream protection practices also provide excellent wildlife habitat.

Tourism is a \$9 billion a year industry in Tennessee and the second largest in the State. Over 30 million people annually visit Tennessee’s State Parks. State parks alone generated approximately \$229 million in sales for lodging, food, and retail items, and produced 4,500 jobs in the regions surrounding the parks in 2000-2001. Secondary multiplier effects added approximately \$146 million in sales for lodging, food, and retail items to this direct income and created an additional 1,857 jobs.

Creating a Sustainable Green Infrastructure will provide current and future generations of Tennesseans with a beautiful and healthy environment. Green Tennessee will provide cleaner water to drink, purer air to breathe, reliable food sources, and opportunities for scientific discoveries that can provide future solutions to unknown

risks, plus a beautiful homeland with nearby outdoor experiences. These benefits are worthy of this relatively small investment now. The return on this once in a lifetime investment is priceless. Support Green Tennessee.

Healthy Communities

ENVIRONMENTAL JUSTICE

Background

Environmental justice identifies and addresses programs, policies, and activities that may have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

Environmental justice requires the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies (Clinton 1994, TDEC 2000).

In a sustainable community, environmental protection, economic objectives and social justice are linked in harmony. Understanding the interrelatedness and interconnectedness of environmental justice and environmental sustainability is important (DSCEJ 2007, Wingfield 2007)

There exists a clear connection between environmental exposures and health. The National Institute for Environmental Health Sciences (NIEHS) defines environmental health as “the field of science that studies how the environment influences human health and disease. Environment in this context means things in the natural environment like air, water and soil, and also all the physical, chemical, biological and social features of our surroundings.”(NIEHS 2005, NCSE 2007)

Reports from the Institute of Medicine of the National Academy of Sciences have (1)documented the disproportionate exposure to environmental toxics experienced by people of color and low income populations and (2) documented significant disparities in the quality and access to healthcare experienced by these same populations(IOM 1999 and 2002).

Social and cultural factors have been clearly documented as determinants to overall health and definitely would be operative in environmental health. The social factors such as housing, income, employment and education play a major role in environmental health. (Williams 2001, O’Hara 2006, NCSE 2007 Community Based Health Breakout Session)

A 2007 study found that people of color make up the majority (56%) of those living in neighborhoods within 3 kilometers of the nation’s commercial hazardous waste facilities. This study also found that 40 out of 44 states with hazardous waste facilities have disproportionately high percentages of people of color in host neighborhoods. (Bullard 2007)

The U.S. EPA’s 2005 Toxics Release Inventory showed that Tennessee released over 9.9 million pounds of toxic fugitive air emissions, over 71.5million pounds of toxic point source air emissions and over 3.3 million pounds of toxic discharges to surface water. Tennessee also released over 8.3 thousand pounds of persistent bioaccumulative toxic (PBT) fugitive air emissions and over 81.8 thousand pounds of PBT point source air emissions. (USEPA 2007)

According to the Scorecard ranking, Shelby County, TN ranked second on the list of TN counties releasing suspected neurotoxicants into the air. This county showed releases of over 8 million pounds of toxic chemicals into the air. (Green Media Toolshed 2007)

A matching of those counties with high TRI emissions with census data supports the hypothesis that those persons who live in low income or minority communities are exposed to the highest levels of toxic pollutants.(4) Shelby County, TN has a minority(non-white) population of approximately 54% and shows the high levels of TRI releases described above.

The 3rd National Report on Human Exposure to Environmental Chemicals released by the Centers for Disease Control and Prevention provides more solid evidence that the exposure to toxic materials is resulting in the presence of toxic materials in the human body. This report presents exposure data for the U. S. population for 148 chemicals measured over the period 2001-2003. (CDC 2005)

In Dickson County Tennessee, low-income and minority residents have suffered severe negative health outcomes(including breast and prostate cancer) and even death as a result of drinking well water contaminated with toxic trichloroethylene (a metal degreaser) for a decade. The clean-up of Chattanooga Creek in Chattanooga, TN to reduce exposure to toxic materials is still incomplete after decades of community efforts to get it cleaned. Residents in the Edgehill/Villa Place Community of Nashville have been unsuccessful in getting the tetrachloroethylene (dry cleaning fluid) contaminated ground water in their community effectively cleaned beyond the boundaries of the proposed developments. Minority residents of Memphis have been significantly affected for decades by exposure to the toxic emissions of facilities in their neighborhoods. Rivers and streams across the state are impacted by persistent, bioaccumulative and toxic materials (PBTs) which create a hazard for those populations for whom fish from natural sources is a significant part of their diet. Note fishing advisories on TDEC website.

Recommendations:

- (1) Toxic substances and materials must be eliminated from all articles of commerce. The principles of “cleaner and sustainable production” must be followed. (Lowell Center for Sustainable Production 2007)
- (2) Lobby for economic incentives for corporations, government and other entities for the development and use of cleaner technologies to achieve healthier communities.(NCSE 2007)
- (3) Minimize the risks due to exposures that may have potential adverse environmental impacts to communities or residents.
- (4) Residents of impacted communities must be an integral part of the planning, research and decision making for all environmental initiatives and regulations that will impact their community. (TDEC 2000, Sheppard 2002)
- (5) Establish an objective, publicly available procedure to assess and prioritize toxic sites that require cleanup
- (6) Consult residents of potentially affected communities and consider health risks in the prioritization of sites to be cleaned
- (7) A consistent effort must be made to educate and empower impacted communities on environmental issues and policy. Must provide needed training and education for all stakeholders (TDEC 2000)
- (8) Residents of impacted communities should receive clear, validated, useful and understandable information regarding environmental matters in their communities.
- (9) Federal, state and local governments should collaborate with the private sector to make available maps and GIS data that communities can use to examine environmental equity and environmental health issues.(NCSE 2007)
- (10) In instances where the science is incomplete with respect to the environmental health and justice issues, policymakers should exercise caution on behalf of the affected communities(IOM- 1999)

- (11) Needed is a better understanding of the exposure to environmental hazards and susceptibilities to disease on the part of low income and minority populations, as well as links between exposure and disease. (IOM 1999).
- (12) Federal, state and local agencies should actively support research into the disparities of health impacts related to the physical environment.(NCSE 2007)
- (13) The principles of environmental justice should be integrated as a core value in all government agencies across the State of Tennessee in respect to policies, procedures, operations and programs(TDEC 2000)

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FOOD SECURITY

The following is a brief background and summary of the concept and issues of "food security" and reflects only a limited review of information available. "Food security" means many different things to many different people and what comes to mind when it is mentioned will vary depending on your age, race, gender, where and how you live, etc. The concepts and issues presented in this "agenda" are taken from a variety of sources and reflect the most common and current views of food security and its issues. The complexity of the issues facing of food security facing us in Tennessee require us to take a broader view and an open mind in order to develop a comprehensive, but flexible strategic plan that adequately address both short and longer term goals. This agenda is not meant to be a comprehensive treatment of the subject, but only a jumping off point for what we hope will be an enlightening and inspiring discussion of where we are as a state and where we can and should go from here to address the most pressing issues facing us in building healthy communities in Tennessee.

What is Food Security?

Community Food Security (CFS) is a condition in which all community residents obtain a safe, culturally appropriate, nutritionally sound diet through an economically and environmentally sustainable food system that promotes community self-reliance and social justice.¹

At a basic level, CFS is about making healthy food accessible to all. It focuses on bringing fresh, local food into low-income communities, thereby reducing hunger, and improving individual health. But, as the definition above suggests, it's about much more than that.

Community Food Security is about:

- Making nutritious and culturally appropriate food accessible, not just any food
- Supporting local, regional, family-scale, and sustainable food production building and revitalizing local communities and economies
- Providing fair wages and decent working conditions for farmers and food system workers promoting social justice and more equitable access to resources

¹ Source – "WHY - World Hunger Year" website, www.worldhungeryear.org.

- Empowering diverse people to work together to create positive changes in the food system and their communities.

Why Does Food Security Matter?

In the United States

- Food Security is an issue of national security
 - Every year 76 million Americans get sick and 5,000 die from food borne illnesses.
- Food Security issues impact our environment
 - 9% of America's total energy consumption is used to produce, process and transport our foods.² Americans put almost as much fossil fuel into our refrigerators as our cars.
 - It is estimated that the average item of food in the U.S. has traveled 1500 to 2500 miles to reach your dinner table.³ Only about 10% of the fossil fuel energy in the world's food system is used in production, the other 90% goes into packaging, transportation and marketing.
 - Our food is increasingly in the path of development. According to American Farmland Trust, 86% of U.S. fruits and vegetables, and 63% of our dairy products, are produced in urban-influenced areas—areas where farmland is most likely to be lost to development.
- Food Security issues impact education
 - Studies show that providing at-risk students with healthy school food, nutrition education, and opportunities for physical activity has been shown to improve in-school behavior.⁴
- Food Security issues impact our health and our economy
 - All of the world's farms currently produce enough food to make every person on the globe fat. Even though 800 million people are chronically under-fed in the world, it is because they lack money and opportunity, not because food is unavailable.
 - Incidence of Type 2 diabetes has doubled in the last 30 years.
 - While 35 million Americans feel the physical effects of hunger each day, every household and individual in our nation feels the economic effects. The U.S. pays more than \$90 billion annually for the direct and indirect costs of hunger-related charities, illness and psychosocial dysfunction and the impact of less education/lower productivity. These costs are borne by all Americans.⁵
 - Corporate agribusiness profits increased 98% during the 1990s; meanwhile, in 2002 farmers earned their lowest real net cash income since 1940.
 - Since 1935, the U.S. has lost 4.7 million farms. Fewer than 1 million Americans now claim farming as a primary occupation.

² www.ecotrust.org

³ Food Routes – www.foodroutes.org

⁴ http://www.michaelfieldsagainst.org/programs/food/case_study.pdf

⁵ The Sodexho Foundation and researchers affiliated with Harvard University School of Public Health, Brandeis University and Loyola University performed a study entitled, "The Economic Cost of Domestic Hunger: Estimated Annual Burden to the United States." <http://www.sodexhousa.com/press-releases/pr06507.asp>

In the State of Tennessee

- Food Security issues impact the health of Tennesseans – Tennessee is ranked 48th in the country in overall health status 62.3% of Tennesseans are overweight or obese
 - 6 out of 10 Tennesseans were obese or overweight in 2004 according to the Tennessee Department of Health. See “Public Health” agenda
 - In 2005, Tennessee had the third highest rate of infant mortality in the nation, according to the Tennessee Department of Health. In 2005 the infant mortality rate was 15.3 per 1,000 live births among African-Americans compared to 7.1 per 1,000 live births among whites.
- Food Security issues exist in Tennessee and affect our children⁶
 - Although obesity statistics continue to rise dramatically, the number of families with children requesting emergency food assistance increased by 10% in Nashville.
 - 13% of Tennessee households experienced food insecurity from 2003-2005 according to the USDA Economic Research Service.
 - Numerous studies reveal higher rates of obesity and overweight among low-income people. Obesity and malnourishment are dual problems in some Middle Tennessee households.
- Food Security issues impact our economy and culture – Tennessee is losing its farmers and farmland.
 - The average age of farmers in Tennessee is 56, while land used for farming in Tennessee has declined nearly 11% since 1982.
 - Tennessee ranked 8th in the nation in loss of farmland from 1992-1997, according to the American Farmland Trust.

The Basic Principles of Community Food Security

Community food security represents a comprehensive strategy to address many of the ills affecting our society and environment due to an unsustainable and unjust food system. Following are six basic principles of community food security:

- **Low Income Food Needs** – Like the anti-hunger movement, CFS is focused on meeting the food needs of low-income communities, reducing hunger and improving individual health.
- **Broad Goals** – CFS addresses a broad range of problems affecting the food system, community development, and the environment such as increasing poverty and hunger, disappearing farmland and family farms, inner city supermarket redlining, rural community disintegration, rampant suburban sprawl, and air and water pollution from unsustainable food production and distribution patterns.
- **Community focus** – A CFS approach seeks to build up a community's food resources to meet its own needs. These resources may include supermarkets, farmers' markets, gardens, transportation, community-based food processing ventures, and urban farms to name a few.
- **Self-reliance/empowerment** – Community food security projects emphasize the need to build individuals' abilities to provide for their food needs. Community food security seeks to build upon community and

⁶ USDA Economic Research Service has released a new report, “Characteristics of Low-Income Households With Very Low Food Security: An Analysis of the USDA GPR Food Security Indicator.” This report can be found at <<http://www.ers.usda.gov/publications/eib25/eib25.pdf>>. Among the report's findings are that 43% of low-income households with very low food security are in the South.

individual assets, rather than focus on their deficiencies. CFS projects seek to engage community residents in all phases of project planning, implementation, and evaluation.

- **Local agriculture** – A stable local agricultural base is key to a community responsive food system. Farmers need increased access to markets that pay them a decent wage for their labor, and farmland needs planning protection from suburban development. By building stronger ties between farmers and consumers, consumers gain a greater knowledge and appreciation for their food source.
- **Systems-oriented** – CFS projects typically are "inter-disciplinary," crossing many boundaries and incorporating collaborations with multiple agencies.

Top Issues

- **Production:** agriculture, farmland preservation, farmers' markets, household and community gardens, small livestock
- **Processing:** local versus external
- **Distribution:** transportation, warehousing
- **Access:** physical and economic barriers to food; availability of food stores, cafes, and street food; co-ops; school breakfasts and lunches; food stamps, the WIC program and other feeding programs
- **Food-Use:** health and nutrition; cooking and food preservation; food safety and handling
- **Food Recycling:** gleanings; food banks; food pantries and soup kitchens
- **Waste-Stream:** composting, garbage fed to animals, etc.

Addressing Community Food Security with Advocacy & Action

What We Can Do as Individuals and Communities:

(1) We Are What We Eat

- a. Eat locally and regionally grown foods
- b. Eat organically and sustainably grown foods
- c. Join a Community Support Agriculture (CSA) farm
- d. Shop at farmers' markets and get to know farmers in your region
- e. Encourage local stores and restaurants to buy from local growers

(2) Grow Your Own

- a. Start a home garden, and/or help others start gardens
- b. Join or start a community garden
- c. Volunteer to work at a local farm, CSA or garden project

(3) Feed the Hungry

- a. Volunteer at a local soup kitchen or food pantry
- b. Donate to programs that feed the hungry and/or help them become more self-reliant
- c. Grow fresh produce for donation to your local food bank, food pantry or soup kitchen

- d. Work with local schools to improve meal programs to offer fresh and nutritious foods for all students
- (4) Advocate and Educate
- a. Join an organization working on food system issues
 - b. Learn about the food system and current advocacy efforts through newsletters, books and websites
 - c. Talk to your friends and co-workers about food and agriculture issues
 - d. Work with other to start a farm to school or farm to college program
 - e. Work with other to conduct a community food assessment, start a food policy council, and/or develop other programs and policies that advance food security.
 - f. Advocate for continuing and improving food assistance and other safety net programs, and for community economic development and living wage jobs.

What We Can Do as a State

- (1) Create and foster a secure local and regional food system. Bring all of the “players” to the table to generate awareness and develop a holistic approach to food security issues: local and state government and community leaders, governmental agencies, non-profit and faith-based organizations, educational groups, farmers, landowners, developers, business owners and consumers from all socio-economic levels.
- (2) Work together to identify and address food deserts and production, distribution and access issues by conducting a community food assessment both statewide and by individual county and MSA.
- (3) Increase public awareness and education about these and other hunger issues through advocacy and action plans.
- (4) Address land use and land use planning issues through policy changes and statewide action.
- (5) Create incentives and funding opportunities for the entire chain including local farmers, farmers’ markets, local stores and supermarkets and non-profit organizations such as The Food Security Partners of Middle Tennessee and Second Harvest.
- (6) Educate our citizens about food security issues starting with where food comes from and generate interest in the food system from the earliest stages – Farm to School Programs, Community Gardens, and faith-based organizations...
- (7) Consider how best to address the real roots of hunger, which is not about food production, but about poverty.

LEARN MORE, GET INVOLVED AND CHANGE THINGS

National & International Organizations and Projects

- Community Food Security Coalition – www.foodsecurity.org
- Food Routes – www.foodroutes.org
- Heifer International – www.heifer.org
- Journey to Forever – www.journeytoforever.org
- World Hunger Year – www.worldhungeryear.org

- World Neighbors – www.wn.org

Local and Regional Organizations and Projects

- Food Security Partners of Middle Tennessee – www.foodsecuritypartners.org
- Second Harvest Food Bank of Middle Tennessee – www.secondharvestnashville.org
- Tennessee Organic Growers Association – www.tnorganics.org
- Tennessee Department of Agriculture – www.state.tn.us/agriculture or www.picktnproducts.org

PUBLIC HEALTH CONNECTIONS

"Health care matters to all of us some of the time, public health matters to all of us all of the time." C. Everett Koop

Public Health is focused on protecting the health of populations. Populations may vary from a neighborhood to a country. Public health tries to prevent problems from happening or re-occurring through education, policy change, or service delivery.⁷ Many of the public health topics are multi-layered and must be addressed with multiple strategies. Public Health is holistic in nature and takes the whole person and the community into account when designing responses.

Obesity Prevention

People who are obese are at increased risk for heart disease, diabetes, high blood pressure, arthritis-related disabilities, and some cancers. Promoting regular physical activity and healthy eating and creating an environment that supports these behaviors are essential to addressing the problem.⁸ Six out of ten Tennesseans were obese or overweight in 2004 according to the Tennessee Department of Health. In 2005, 15% of Tennessee children or youth were considered overweight or obese with another 18% at risk for overweight status. Below are some of the strategies identified to address this problem:

- Physical activity opportunities-Built environment and programming
 - Public parks systems
 - Sidewalks and complete streets
 - Coordinated School Health programs
 - Greenways & Trails – see Greenways section under Wellness & Fitness
- Healthy eating opportunities

⁷ What is Public Health? Website; This website was developed by the [Association of Schools of Public Health](http://www.associationofschoolspublichealth.org) and was made possible by support from [Pfizer](http://www.pfizer.com); Accessed 10/25/2007

⁸ Centers for Disease Control, Chronic Disease-Nutrition and Physical Activity At-A-Glance, <http://www.cdc.gov/nccdphp/publications/aag/dnps.htm>; accessed 11/5/2007

- Coordinated School Health Programs
- Farmer’s Markets
- Farm to School initiatives
- Food access – See Food Security section
- Promotion of breastfeeding
- What more needs to be done?
 - Partnerships
 - Programs
 - Policies
 - Environmental changes

Wellness & Fitness

Wellness is generally used to mean a healthy balance of the mind, body, and spirit that results in an overall feeling of well-being. Wellness means being much more than just disease-free. Physical fitness is a general state of good health, usually as a result of exercise and nutrition.⁹

- Greenways & Trails¹⁰ – Greenways are linear parks or corridors of protected open space, which provide connections. Greenways are used to connect communities to each other and natural spaces. Greenways are one way that the environment lends itself to better health. These spaces have many uses, not to say the least of which is a physical activity benefit, and are proven to attract families and individuals of ages and abilities to walk, run, and ride bikes in the outdoors for both physical and mental well-being. Greenways are being built all across the nation and Tennessee has about 750 various trail and bike path projects on the ground. The demand for projects is ever-increasing as are demands for funding to build facilities in communities across the state.
- Food access – See “Food Security” agenda
- Lessened reliance on automobiles
- Increased mixed land use
- Increase in businesses creating healthier work places
- What more needs to be done?
 - Partnerships
 - Environmental changes

⁹ Definition of wellness, Wikipedia, <http://en.wikipedia.org/wiki/Wellness>, accessed 11/6/2007.

¹⁰ Tennessee Greenways and Trails Citizens Action Guide, accessed 10/30/2007 www.tenngreen.org/greenwaysandtrails

Sustainable Energy

PRIORITY ISSUE 1: TVA to set its energy efficiency target to meet and exceed projected load and peak growth.

Background

- Centrally generated electricity is the most energy intensive and polluting form of energy. Two-thirds of the energy used to generate electricity is wasted prior to arriving at meter. 32% of TN Green House Gases (GHG) comes from TVA power generation.
- Electric energy efficiency spending per capita in the Southeast is just one-fifth the national average. Energy efficiency and conservation are TVA's least-cost options to meet power demand and reduce GHG.
- Shifting electricity industry strategies: slowing load growth, rising prices, capacity shortages, carbon risk, growing realization of the demand side investment potential, consideration of new business models.
- TVA's commitment to energy efficiency lags far behind other utilities. Over a five-year period TVA's energy efficiency goal is 692 GWh, which is only 12% of its projected load growth for that period.
- The Southeast region has the lowest levels of Energy Star market penetration in the nation.
- TVA lacks adequate regulatory oversight and internal foresight to turn it towards a major energy efficiency program without significant outside impetus.
- Energy efficiency cuts the need for costly capital expansion and saves precious resources for other vitals uses and future generations.

Goals: Strategic Plan for TVA

1. Set energy efficiency targets to match and exceed projected demand growth: minimum annual energy savings of 2.5% to 3%. (TVA projects a 1.9% growth in electricity demand.)
2. Use Demand Side Management to provide customer incentives and disincentives to promote energy efficiency and reduce peak load.
3. Reform rate structure to increase efficiency without penalizing TVA and distributors. Those who use more, pay more. Those who use peak power, the most expensive to provide, pay more.
4. Provide low income assistance weatherization and other energy efficiency programs.
5. Report annually on the verified energy efficient savings.

Recommendations for Action: Setting TVA's Energy Efficient Target to Match and Exceed Projected Demand Growth

- (1) Educate decision-makers (state, TVA board and staff, Congressional delegation, corporations) and media about the value and feasibility of TVA matching and reducing through energy efficiency TVA's projected 1.9% load and peak growth.
- (2) Develop relationships with distributors to increase communication and information flows.
- (3) Network, educate, and organize civic, church, and advocacy community to communicate with decision-makers and media.
- (4) Network with national NGOs for their assistance in developing a Valley-wide energy efficiency implementation strategy.
- (5) Participate in TVA's Energy Efficiency Stakeholder Council.

PRIORITY ISSUE 2: Setting Renewable and Doable TVA Electric Generation Targets

Background

- Renewable energy is the only form of sustainable energy.
- Many other utilities have set renewable energy goals for electricity.
- TVA can be carbon and nuclear-free – it's doable!
- TVA has actively lobbied against renewable energy as unworkable for the Southeast.
- Direct solar PV and many other forms of renewable energy can be used in the southeast and both the technology and the economic conditions for doing so are advancing rapidly.
- To achieve a sustainable supply of energy for now and the future, TVA must greatly expand its renewable energy sources.

Goals

1. Research and determine a doable renewable energy goal for TVA that includes an appropriate mix of wind, solar PV, biomass, methane, and hydro-modernization.
2. Perform a careful assessment of the potential for biofuels development in Tennessee. Though biofuels appear to offer a big opportunity, investment in this renewable energy form must be done judiciously and carefully, so that it will be truly sustainable and low-polluting.
3. Require TVA to generate 20% a minimum of its electricity through renewable sources.

Recommendations for Action: Tools and Strategies

- (1) Network with the research community in the Valley to set a renewable electrical energy standard for TVA that includes wind, PV, biomass, methane, and hydro-modernization.
- (2) Perform a careful assessment on the various forms of biomass energy production to determine their sustainability, impacts on natural resources, GHG emissions, waste products, societal impacts, and Production of carbon and other pollutants.
- (3) Initiate a campaign and work with national NGOs to legislatively require TVA to have a Renewable Energy Standard (RES) portfolio.
- (4) Partner with renewable energy advocates to develop educational materials for decision-makers and the public.
- (5) Provide incentives and subsidies for both new and established renewable energy industries equivalent to those for fossil and uranium fuels industries.

PRIORITY ISSUE 3: State Action on Climate Change

Background

- Tennessee lacks a comprehensive State Plan to address climate change by minimizing fossil fuel emissions.
- Many of our neighbor states in the Southeast such as South Carolina, North Carolina and Florida have instigated state planning processes to limit their States contribution to Climate Change.
- The “Tennessee Greenhouse Gas Mitigation Strategies” report of 1999, prepared by Tennessee Technological University under the aegis of the Energy Division of the Department of Community and Economic development, provides a starting point and may be updated with the latest scientific findings and emission reduction strategies to produce a comprehensive plan.
- We now recognize the multiple threats to our lives, livelihoods and way of life if we continue to ignore the emerging impacts on our agriculture, forests, homes, businesses, economy and recreational activities as a result of Climate Change.
- Reductions in emissions will bring additional benefits to our public health, for example, by reducing mercury emissions from coal fired plants which then accumulate in our waters and in human tissues, including those of pregnant women and unborn children.
- At least 36 States and numerous counties and cities have implemented or are preparing to implement such plans.
- The General Assembly may find the need to take action to reduce our emissions of global warming pollution and it is important that the General Assembly have the information necessary to consider the most cost effective and efficient manner to respond.
- Many States and local governments are actively working to limit greenhouse gas emissions and there is no federally announced plan to lower greenhouse gas pollution on a national scale thus leaving leadership to States to take action.

- There are many resources and recommendations to assist in the preparation of a state plan for climate change mitigation and adaptation such as plans formulated by other States and their state climate commissions and energy conservation agencies, the potential benefits of partnerships with the International Council for Local Environmental Initiatives (ICLEI) Climate Resilient Communities program, and consultation with the Center for Climate Strategies and the Pew Center on Climate Change.

Recommendations for Action

- (1) That the General Assembly requires a Tennessee Climate Action Plan be prepared recommending specific actions, initiatives, policies and programs be taken to limit greenhouse gas emissions.
- (2) This Action Plan should be prepared under the leadership of the Department of Economic and Community Development and its Energy Division and the Department of Environment and Conservation and its Bureau of Environment.
- (3) This Action Plan should contain at least the following elements:
 - a. An update of the “Tennessee Greenhouse Gas Mitigation Strategies” report of 1999 with respect to the Greenhouse Gas Emissions inventory, and Greenhouse Gas Emissions reduction recommendations to avoid or reduce impacts by sector.
 - b. A Greenhouse Gas Emissions reductions target and an ongoing method to monitor and track the extent to which Greenhouse Gas Emission reductions are achieved.
 - c. A discussion and recommendations concerning changing impacts and threats of interruption of power from hydro, coal and nuclear plants due to climate change such as increasing water temperatures or lack of water to provide power plant cooling while maintaining water quality standards and the availability of water for other beneficial uses.
 - d. Recommendations for ongoing state planning for climate change mitigation and adaptation such as the creation of a state climate commission or the potential benefits of partnerships such as the International Council for Local Environmental Initiatives (ICLEI) Climate Resilient Communities program and the benefits in the state to participating in the Chicago Climate Exchange.
 - e. Recommendations to the General Assembly and the Governor for legislative and executive actions and recommendations to Tennessee Valley Authority (TVA) regarding actions and programs to limit energy production contributions to Tennessee’s Greenhouse Gas Emissions.
 - f. Assistance in preparation of this plan and recommendations should be requested from the University of Tennessee system and the State University system with special knowledge of climate change causes and impacts, and assistance from Oak Ridge National Laboratory, TN Wildlife Resource Agency, and appropriate federal agencies and non-governmental organizations.
- (4) That the Department of Economic and Community Development provide opportunities for public participation in preparation of this report and include recommendations for specific efforts to incorporate input from organizations actively involved in or having special knowledge of climate change causes and impacts.
- (5) That the Department of Economic and Community Development submit its findings and recommendations no later than February 1, 2009 to the Governor, as well as the Chairs of the appropriate General Assembly committees.

PRIORITY ISSUE 4: Developing the State Energy Plan – the Bottom Line

Background: Why Efficiency is the “First Fuel for States

- Efficiency does more for the economy than any energy resource.
- Efficiency is the first response to high energy prices, capacity shortages, and carbon emission challenges.
- Efficiency is a renewable resource and is always available.
- Efficiency requires policy action. Markets alone won't reap enough energy efficiency (EE) due to barriers such as income elasticity, principal-agent barriers (builder-buyer, landlord-tenant), and information-cost barriers (consumers don't have time and money to study each purchase). Over half of building energy usage is affected by barriers.
- States are the leaders on energy policy. Congress is unable to move transformational energy policies. States have become the laboratories of innovation and effectiveness and now outspend the federal government by a ratio of 3:1.
- New trends could drive efficiency to an even larger role in state energy policy.
- TN ranks 43rd for efficiency policies regarding appliance efficiency standards, combined heat and power, building energy codes, fuel economy and smart growth, spending on utility and public benefits EE programs, tax incentives, and other state facilities Leading by Example.

Recommendations for Action

- (1) State Lead by Example: As a first principle, the Plan must call on the state to lead by its own example.
 - a. State Buildings: The State of TN leads by example by adhering to energy efficiency performance criteria and standards (Energy Star) for the construction of new state facilities. The energy intensity metric for buildings is energy / square foot and all should be subject to a HERS rating audit after a full 12 months of occupancy and operation. The state should, whenever possible, lease Energy Star certified facilities. The State should establish an overall annual percent savings target for energy use and GHG emissions. The target should be adjusted upward periodically to reflect changing conditions and technology improvements. (See Integrating Energy Services for State Buildings: An Energy Action Plan for TN Buildings, 2001.)
 - b. State Purchase of Energy Efficient Products: The State by law, regulation, grant, program conditions, and other means, should specify that state, local government, and state contractor purchased equipment meet Energy Star efficiency standards for electronics, office equipment, HVAC, and lighting. The benefits include savings and market stimulation.
 - c. State Vehicle Fleet: The State should require that its vehicle fleet attains annual efficiency and carbon targets. The rapid and effective implementation of Public Chapter No. 532 and the further efforts to reduce the state fleet's fuel consumption is critical to leading by example.
- (2) Update our Residential and Commercial Building Energy Codes: Buildings built now will consume energy for thirty years or more. Immediate steps to update our Residential and Commercial Building Energy Codes will have a permanent payoff in energy savings. The State Plan should strongly recommend the adoption of the 2006 MED/IECC codes which require a minimum level of energy efficiency in new residential

construction. ASHRAE has building energy codes for commercial buildings that are performance based with prescriptive provisions. Energy Star, however, rates buildings on actual performance, not just design. The Plan should require keeping our building energy codes current and provide incentives for verification of achieving greater energy savings than required by the codes.

- (3) Vehicle Emission Standards: The State should adopt the California emission standards as soon as the Environmental Protection Agency clears the way for state level controls. Compare HB1815 and SB0486 now pending the General Assembly.
- (4) Industrial and Commercial Efficiency and Carbon Reduction: Included in developing polices and laws under this heading are
 - a. Ideas to encourage businesses and industry to monitor energy usage and increase their energy efficiency.
 - b. State standards for Energy Service Companies (ESCOs).
 - c. Expanded programs for energy audits
 - d. Develop energy-efficiency and renewable energy skill training programs through its community colleges and universities.
 - e. Fully promote and support the Clean Energy Technology (CET-TN) grant to support the generation of clean energy for commercial buildings.

PRIORITY ISSUE 5: The Energy Savings and Clean Energy Fund

Background

- TVA relies on increasing electricity consumption to pay down its debt. It owes the Federal Government 15 billion dollars for nuclear plants that were never completed. It owes another 10 billion to private investors who have financed increased generation and distribution infrastructure.
- Local government electric distributors and rural distributors plan investments on the assumption of steadily increasing power consumption.
- With endless growth built into the plans of TVA and distributors, we must find a way to reward conservation and efficiency and finance distributed generation from renewables like solar and wind.
- Almost half the states have funds, often called “public benefit funds,” dedicated to supporting energy efficiency and renewable energy projects. The funds are collected either through a small charge on the bill of every electric customer or through specified contributions from utilities. The charge ensures that money is available to fund these projects.

Recommendations for Action

- (1) The State needs to develop a funding mechanism which generates a substantial and permanent source of financial incentives for conservation, efficiency, renewable, distributed energy supplies and consumer education. The Energy Savings and Clean Energy Fund’s dedicated revenue should be administered by an accountable third-party organization charged to support a rapid and widespread shift to conservation, efficiency, and renewable energy supplies

- (2) **Alternate:** Devise and implement a plan to forgive federal government debt owed by TVA in exchange for real and measurable energy savings by conservation and efficiency and an increase in renewable generation.

PRIORITY ISSUE 6: Local Energy Sustainability

Background

Local governments have the power to affect the main sources of pollution directly linked to climate change: energy use, transportation, and waste. They are uniquely positioned to influence citizen behaviors that directly affect climate change such as transportation options, energy consumption patterns, and general consumer decisions.

Responsibilities of Local Governments Key to Energy Sustainability and Climate Action

- Responsible for issuing building and development permits.
- Responsible for residential and commercial land-use decisions that profoundly influence energy use in the transportation sector.
- Authority to determine the availability of public transit.
- Authority to set building codes that influence energy efficiency.
- Authority over waste disposal.

Goals: Top Cost Effective Actions for Local Government

1. **Education:** Effectively communicating to city's staff and community the importance and impact of taking actions to reduce GHG is key to the success of all following measures.
2. **Clean Fleets and Fuel:** From restricting the idling of city vehicles to purchase of most fuel efficient vehicles possible, cities can reduce emissions and costs from its largest pollution source - transportation.
3. **Recycling:** Waste prevention and recycling reduces GHG by reducing the energy embodied in the manufacturing of the product. Reducing the volume of waste reduces solid waste collection fees.
4. **Switch to LEDs or CFLs:** Use in traffic signals, exit lights, and lighting of municipal buildings.
5. **Turn out Lights at Night and When Not in Use:** Significant savings in electricity use can be realized through staff education, timers, and occupancy sensors.
6. **Purchase Energy Efficient Equipment:** Buy only Energy Star rated equipment.
7. **Light Roofs:** When possible, repaint metal roofs with light-colored paint to reflect sunlight.
8. **Plant Trees:** Homes on tree-lined streets have lower heating and cooling costs.

Recommendations for Action - Tools and Strategies

- (1) Use web-based resources to promote Cool Mayors, ICLEI, and other national model programs for local energy efficiency and improved sustainability.
- (2) Commit one-hour weekly to sustainable community work.

- (3) Carefully select information for local leaders to help them understand solutions to challenges.
- (4) Encourage county and city mayors to become Cool Mayors.
- (5) Meet with planning commissions and TDOT MPOs and RPOs about Smart Growth
- (6) Meet with local electricity distributors about need for energy efficiency and renewable energy.
- (7) Develop relationships with local leadership and become a reliable resource for them.
- (8) Develop a civic, church, and business community outreach program.
- (9) Meet with state and congressional representatives when they come to your community.
- (10) Organize a local sustainable summit to collaborate with others working on sustainability in local or regional area.
- (11) Get involved in local elections and work for sustainable candidates.